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Topics in Applied Econometrics:

Empirical Industrial Organization

Course Description

This is a topics course in Industrial Organization. The goal is to bring students to the frontier of the research literature, with the expectation that they could then perform research in this area independently. The course covers two major areas of IO: demand estimation, with applications to health care markets (Part I) and advanced topics in auction markets (Part II). Both of them are analyzed from both a theoretical and an empirical perspective. Particular emphasis is given to recent empirical methods for the structural analysis of these markets.

Instructor

Francesco Decarolis

Contact information

My office is on the 5th floor of the Roentgen Building. You can reach me by e-mail at francesco.decarolis@unibocconi.it. My office hours are by appointment.

Grading:

Referee reports of two papers	25%
Presentation of one paper	25%
Empirical project	50%

A referee report is a 3-page critical summary of a paper relevant for this class. The presentation lasts 30 minutes and involves one of the papers listed in the reading list below. The empirical project entails replicating (part of) the analysis of one paper on auction and of one paper on demand estimation, among those discussed in class.

Academic Conduct

I expect students to collaborate on assignments, such as discussing papers together for referee reports or presentation. However, I expect each assignment to represent substantial independent work by the student. Read the *Bocconi Academic Conduct Code* carefully.

Materials available here:

https://cloud.unibocconi.it/ssf/a/do?p_name=ss_forum&p_action=1&action=__login&refererUrl=https%3A%2F%2Fcloud.unibocconi.it%2Fssf%2Fa%2Fdo%3Fp_name%3Dss_forum%26p_action%3D1%26binderId%3D1835129%26action%3Dview_permalink%26entityType%3Dfolder%26novl_url%3D1%26euet%3Dnull

WEEKLY SCHEDULE

PART I: DEMAND ESTIMATION

Week 1 (1 class): Introduction to Demand Estimation & Demand in Product Space

(*) Deaton, A. and J. Muellbauer, (1980). "An Almost Ideal Demand System," The American Economic Review, Vol. 70, No. 3. (Jun., 1980), pp. 312-326.

(*) Hausman, Leonar and Zona, (1994). "Competitive Analysis with Differentiated Products," Annales de Economie et de Statistique, 34.

Week 2: Demand in Characteristics Space: Basics & BLP

(*) Berry (1994). "Estimating Discrete-Choice Models of Product Differentiation," The RAND Journal of Economics, Vol. 25, No. 2, pp. 242-262

(*) Berry, S., J. Levinsohn and A. Pakes, (1995). "Automobile Prices in Market Equilibrium," Econometrica, 63(4), 841-890.

Week 3: Demand Estimation: Supply Side, IV Choice and Computational Issues

(*) Nevo,(2001). "Measuring Market Power in the Ready-to-Eat Cereal Industry," Econometrica, Vol. 69, No. 2., pp. 307-342

(*) Dube, J. H., Fox, J. T., & Su, C. (2009). Improving the Numerical Performance of BLP Static and Dynamic Discrete Choice Random Coefficients Demand Estimation.

(*) Knittel and Metaxoglou, (2012). "Estimation of Random Coefficient Demand Models: Challenges, Difficulties and Warnings," forthcoming in The Review of Economics and Statistics.

Week 4: Demand Estimation: Micromoments and Welfare

(*) Petrin (2002). "Quantifying the Benefits of New Products: The Case of the Minivan," Journal of Political Economy, 110, 4.

(*) Decarolis, Polyakova and Ryan (2015). "The Welfare Effects of Supply-Side Regulations in Medicare Part D" mimeo.

Ackerberg, D., & Rysman, M., (2005). "Unobserved Product Differentiation in Discrete Choice

Models: Estimating Price Elasticities and Welfare Effects,” *RAND Journal of Economics* 36, 771-788.

Week 5: Applications to Health Care Markets: Marketing, Mergers and Subsidies

(*) Einav, Finkelstein and Levin, (2010). “Beyond Testing: Empirical Models of Insurance Markets”

Annual Review of Economics, 2(1), September 2010.

(*) Capps, Dranove & Satterthwaite, (2003). ‘Competition and Market Power in Option Demand Markets’, *Rand Journal of Economics*, 34(4): 737-763.

(*) Decarolis, Polyakova, Ryan (2013). “Pricing and Incentives in Publicly Subsidized Health Care Markets: The Case of Medicare Part D,” mimeo.

Lustig, (2008). "The Welfare Effects of Adverse Selection in Privatized Medicare," mimeo.

Amanda Starc (2011), “Insurer Pricing and Consumer Welfare: Evidence from Medigap”, mimeo

Town (2001). “The Welfare Impact of HMO Mergers”, *Journal of Health Economics*, 20, 967-994.

Dafny, Duggan & Ramanarayanan (2011). “Paying a Premium on your Premium? Consolidation in the U.S. Health Insurance Industry,” *American Economic Review*.

Week 6: Models of Suppliers Behavior

(*) Matthew Grennan (2013), Price Discrimination and Bargaining: Empirical Evidence from Medical Devices, *American Economic Review*, 103.

Jean-François Houde, Jason Allen, Robert C. Clark, (2013). “Price negotiation in differentiated product markets: The case of insured mortgages in Canada,” mimeo.

(*) Handel, B., I. Hendel and M. D. Whinston, (2013). “Equilibria in Health Exchanges: Adverse Selection vs. Reclassification Risk,” mimeo.

Two Alternatives for Week 7:

Option 1: Estimating Demand with Consumer Level Data

(*) Handel, (2010). “Adverse Selection and Switching Costs in Health Insurance Markets: When Nudging Hurts,” mimeo.

Abaluck and Gruber, (2011). “Choice Inconsistencies Among the Elderly: Evidence From Plan Choice in the Medicare Part D Program,” *American Economic Review*.

(*) Bundorf, Levin & Mahoney, (2011). “Pricing and Welfare in Health Plan Choice,” *American Economic Review*, 2011.

(*) Einav, Finkelstein, Ryan, Schrimpf & Cullen, (2011). “Selection on moral hazard in health insurance,” mimeo.

Cardon & Hendel, (2001). “Asymmetric information in health insurance: evidence from the national medical expenditure survey,” *Rand J. Econ.* 32:408–27

Option 2: Alternative Approaches

(*) Bajari, Hong, Khwaja & Marsh, (2011). “Moral Hazard, Adverse Selection and Health Expenditures: A Semiparametric Analysis,” mimeo.

(*) Gaurab, Perrigne & Vuong, (2010). "Nonidentification of Insurance Models with Probability of Accidents"

(*) Gaurab, Perrigne & Vuong, (2009). "Identification of Insurance Models with Multidimensional Screening"

PART II: AUCTIONS

Week 8: Review of Auction Theory & Estimation for Single Auctions

(*) Athey & Haile, (2007). "Nonparametric Approaches to Auctions", Handbook of Econometrics, V 6.

(*) Guerre, Perrigne & Vuong (2000). "Optimal Nonparametric Estimation of First-Price Auctions," *Econometrica*, 2000, 68, 525-574.

Krishna, (2002). *Auction Theory*, Academic Press.

Haile & Tamer, 2003. "Inference with an Incomplete Model of English Auctions," *Journal of Political Economy*, vol. 111(1), pages 1-51.

Week 9: Single Object under IPV: Entry, Asymmetric Bidders and Unobserved Heterogeneity

(*) Krasnokutskaya (2011). "Identification and Estimation in Procurement Auctions under Unobserved Auction Heterogeneity", *Review of Economic Studies*.

(*) Aradillas-Lopez, Gandhi & Quint, (forthcoming). "Nonparametric Methods for Ascending Auctions with Unobserved Heterogeneity", *Econometrica*.

Decarolis (2009). "When the Highest Bidder Loses the Auction: Theory and Evidence from Public Procurement," mimeo.

Krasnokutskaya, E., & Seim, K. (2011). Bid Preference Programs and Participation in Highway Procurement Auctions. *American Economic Review*, 101(6), 2653-2686.

Athey, Levin & Seira, (2011). "Comparing Open and Sealed Bid Auctions: Theory and Evidence from Timber Auctions", *AEJ Micro*.

Marmer, Shneyerov & Xu (2007). "What Model for Entry in First-Price Auctions? A Nonparametric Approach", mimeo.

Week 10: Collusion in Single Unit Auctions

(*) Bajari & Ye, (2003). "Deciding Between Competition and Collusion", *Review of Economics and Statistics*, November, 971-989.

(*) Asker, J., (2011). "A Study of the Internal Organization of a Bidding Cartel". *American Economic Review*.

(*) Conley & Decarolis (2012). "Detecting Bidders Groups in Collusive Auctions," mimeo.

Pesendorfer, (2000). "A Study of Collusion in First-Price Auctions, " *Review of Economic Studies*, 67.

(*) Chassang & Ortner (2019). "Collusion in Auctions with Constrained Bids: Theory and Evidence from Public Procurement," *Journal of Political Economy*, forthcoming

Porter & Zona, (1993), "Detection of Bid Rigging in Procurement Auctions", *Journal of Political Economy*, 101, 518-538.

Porter & Zona, (1999), Ohio School Milk Markets: An Analysis of Bidding, RAND Journal of Economics, 30.

Week 11: Internet Auctions

(*) Edelman, Ostrovsky & Schwartz, (2007). "Internet advertising and the generalized second price auction," AER

(*) Varian (2007), "Position auctions," International Journal of Industrial Organization 25 (2007) 1163–1178

(*) Athey & Nekipelov, (2010). "A Structural Model of Sponsored Search Advertising Auctions," mimeo.

Ariely, Ockenfels & Roth, (2005). "An Experimental Analysis of Ending Rules in Internet Auctions," RAND Journal of Economics, The RAND Corporation, vol. 36(4), pages 890-907.

Lewis, (2011). "Asymmetric Information, Adverse Selection and Online Disclosure: The Case of eBay Motors," American Economic Review, Vol. 101 (4).

Decarolis, Goldmanis & Penta (2013), "Bidders Coordination in Sponsored Search Auctions," mimeo.

Einav, Kuchler, Levin and Sundaresan (2011). "Learning from Seller Experiments in Online Markets," mimeo.

Balseiro, S., O. Besbes, and G.Y. Weintraub (2012). "Auctions for Online Display Advertising Exchanges: Approximations and Design," mimeo.

Week 12 (One Class): Scoring Rules / Multiple Objectives

(*) Athey & Levin, 2001. "Information and Competition in U.S. Forest Service Timber Auctions," Journal of Political Economy, University of Chicago Press, vol. 109(2), pages 375-417

(*) Bajari & Lewis, (2011). "Procurement with Time Incentives: Theory and Evidence," Quarterly Journal of Economics, Vol. 126 (3), August 2011

Asker & Cantillon, (2008). "Properties of Scoring Auctions," RAND Journal of Economics, v39(1), pp 69-85.

Asker & Camntillon, (2010). "Procurement when Both Price and Quality Matter," RAND Journal of Economics, v41(1) pp 1-34.

Bajari & Lewis, (2011). "Incentives and Adaptation: Evidence from Highway Procurement in Minnesota," mimeo.

Krasnokutskaya, E. (2012). Identification and Estimation of Auction Model with Two-Dimensional Unobserved Heterogeneity. International Economic Review, 53(3), 659-691.

Week 13: Simultaneous Dependent Multiunit

(*) Ausubel, Cramton, Pycia, Rostek and Weretka (2011), "Demand Reduction, Inefficiency and Revenues in Multi-Unit Auctions," mimeo.

(*) Hortacsu & McAdams, (2010). "Mechanism Choice and Strategic Bidding in Divisible Good Auctions: An Empirical Analysis of the Turkish Treasury Auction Market," Journal of Political

Economy , v. 188, no.5, October 2010, p. 833-865.

Hortacsu, (2011). "Recent Progress in the Empirical Analysis of Multi-Unit Auctions," *International Journal of Industrial Organization* , v. 29, Issue 3 (EARIE 2010 Special Issue), May 2011, p. 345-349.

Hortacsu & Kastl, (2008). "Informational Advantage and Information Structure: An Analysis of Canadian Treasury Auctions," mimeo.

Kastl, (2011). "Discrete Bids and Empirical Inference in Divisible Good," *Review of Economic Studies*, 78 (3).

Week 14: Three Options Depending on Class Interests

Option 1: Multi-object and Combinatorial

(*) Cantillon & Pesendorfer (2006), "Combination Bidding in Multi-Unit Auctions," mimeo

(*) Epstein, Olivares, Weintraub & Yung, (2011), "Combinatorial Auctions for Procurement: An Empirical Study of the Chilean School Meals Auction," mimeo.

Kim, S. W., M. Olivares and G.Y. Weintraub (2012). "Measuring the Performance of Large-Scale Combinatorial Auctions: A Structural Estimation Approach," mimeo.

Option 2: Sequential

(*) Bajari & Yeo, (2009). "Auction Design and Tacit Collusion in FCC Spectrum Auctions," *Information Economics and Policy*, Volume 21, Issue 2, 90-100.

Donald, Paarsch & Robert (2006). "An Empirical Model of the Multi-Unit, Sequential, Clock Auction," *Journal of Applied Econometrics*, 21, 1221–1247.

(*) Brendstrup & Paarsch (2006): "Identification and Estimation in Sequential, Asymmetric, English Auctions," *Journal of Econometrics*, 134, 69–94.

Brendstrup, (2007): "Nonparametric Estimation of Sequential English Auctions," *Journal of Econometrics*, 141

Option 3: IPO and Financial

(*) Cassola, Hortacsu & Kastl, (2009). "The 2007 Subprime Market Crisis Through the Lens of European Central Bank Auctions for Short-Term Funds," mimeo.

(*) DeMarzo and Ilan Kremer & Skrzypacz (2005). "Bidding with Securities - Auctions and Security Design," *American Economic Review* 95 (4) pp. 936 – 959

(*) Che & Kim, (2010). "Bidding with Securities: Comment," *American Economic Review*
Biais, & Faugeron-Crouzet, (2002). "IPO Auctions: English, Dutch, ... French, and Internet," *Journal of Financial Intermediation*, Elsevier, vol. 11(1), pages 9-36, January.

Biais & Bossaerts, & Rochet, (2002). "An Optimal IPO Mechanism," *Review of Economic Studies*, 69(1).

Rhodes-Kropf, M. and S. Viswanathan, (2005). "Financing Auction Bids," *Rand Journal of Economics*, 36.

Week 15 (One class): Two Options Depending on Class Interests

Option1: Moment inequality and their application

(*) Ho, (2009). "Insurer-Provider Networks in the Medical Care Market," *American Economic*

Review.

(*) Pakes, (2010). "Alternative Models for Moment Inequalities," *Econometrica*
Pakes, Porter, Ho & Ishii, (2010). "Moment Inequalities and Their Application," mimeo.
Haile & Tamer, 2003. "Inference with an Incomplete Model of English Auctions," *Journal of Political Economy*, vol. 111(1), pages 1-51.

Option 2: Matching markets

(*) Roth, Sonmez & Unver (2007) "Efficient Kidney Exchange: Coincidence of Wants in a Structured Market," *American Economic Review* 97
(*) Bajari & Fox, (2010). "Measuring the Efficiency of an FCC Spectrum Auction," mimeo.
Roth, (2008). "Deferred Acceptance Algorithms: History, Theory, Practice, and Open Questions," *International Journal of Game Theory*, Special Issue in Honor of David Gale on his 85th birthday, 36, March, 2008, 537-569
Echenique, Lee, Yenmez & Shum, (2010). "The Revealed Preference Theory of Stable and Extremal Stable Matchings," mimeo.
Fox, (2010). "Identification in Matching Games," *Quantitative Economics*.